

METHOD FOR FORMING A DEEP TRENCH CAPACITOR BURIED PLATE

Abstract

A method for forming a deep trench capacitor buried plate. A substrate having a pad oxide and a pad nitride is provided. A deep trench is formed in the substrate. A doped silicate film is deposited on a sidewall of the deep trench. A sacrificial layer is deposited in the deep trench, and etched back to expose parts of the doped silicate film. Then, an etching process is performed to remove the exposed doped silicate film and parts of the pad oxide for forming a recess. The sacrificial layer is removed. A silicon nitride layer is deposited to fill the recess and to cover the doped silicate film. Finally, a thermal oxidation process is performed to form a doped ion region. The silicon nitride layer is removed. The doped silicate film is removed.